

ABSTRACT

A real-time calibration method for beam profile ellipsometry systems includes projecting an electromagnetic probe beam having a known polarization state through an objective lens onto the surface of a subject and collecting the reflected probe beam using
5 the same objective. The reflected probe beam is then passed through a rotating compensator and analyzer before being received by a detector. A processor performs a harmonic analysis on the detector output to determine normalized Fourier coefficients. The processor uses Fourier coefficients to measure the retardation δ_B and the azimuth angle Q_B of the objective lens; and uses the retardation δ_B and the azimuth angle Q_B to
10 identify the ellipsometric effects of the objective lens.